

WHAT IS CLAIMED IS:

1. A method for authenticating a user in a conversational system, comprising the steps of:

receiving an identity claim from a user;

5        computing a confidence score based on the identity claim using speech input from the user, wherein the confidence score is a measure of confidence in the validity of the identity claim;

10        providing the user access to secured data based on the computed confidence score.

2. The method of claim 1, further comprising the step of maintaining the confidence score as part of the system state.

15        3. The method of claim 1, further comprising the steps of:

partitioning the secured data into a plurality of data classes;

assigning a security level to each of the data classes; and

20        constructing an access map based on the security levels for accessing the secured data.

4. The method of claim 3, further comprising the steps  
of:

selecting a range of confidence scores;

partitioning the range of confidence scores into a

5 plurality of regions; and

assigning each region to one of the security levels.

5. The method of claim 4, wherein the step of  
providing the user access to secured data based on the  
computed confidence score comprises the steps of:

10 determining a given region of the plurality of regions  
which comprises the computed confidence score;

determining the security level assigned to the given  
region; and

15 accessing secured data using the access map based on  
the security level assigned to the given region.

6. The method of claim 5, wherein the step of  
accessing secured data using the access map comprises the  
step of allowing access to secured data that is assigned to  
the security level of the given region and secured data  
20 assigned to at least one security level that is lower than  
the security level of the given region.

7. The method of claim 1, further comprising the step of re-computing the confidence score upon an occurrence of a predetermined event.

8. The method of claim 7, wherein the predetermined  
5 event is a user query for accessing secured data.

9. The method of claim 1, wherein the confidence score is based on a linear function of statistical models that characterize the score under a plurality of conditions.

10. The method of claim 9, wherein the confidence  
10 score comprises one of (1) a first component for considering a single mode implementation and (2) the first component and a second component for considering a multi-modal implementation.

11. The method of claim 10, wherein the confidence  
15 score comprises a mixing factor for weighting the first and second component in a multi-modal implementation.

12. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for authenticating a

user in a conversational system, the method comprising the steps of:

receiving as input an identity claim from a user;

computing a confidence score based on the identity

5 claim using speech input from the user, wherein the confidence score is a measure of confidence in the validity of the identity claim;

providing the user access to secured data based on the computed confidence score.

10 13. The program storage device of claim 12, further comprising instructions for performing the step of maintaining the confidence score as part of the system state.

15 14. The program storage device of claim 12, further comprising instructions for performing the steps of:

partitioning the secured data into a plurality of data classes;

assigning a security level to each of the data classes;  
and

20 constructing an access map based on the security levels for accessing the secured data.

15. The program storage device of claim 14, further comprising instructions for performing the steps of:

selecting a range of confidence scores;

partitioning the range of confidence scores into a plurality of regions; and

assigning each region to one of the security levels.

16. The program storage device of claim 15, wherein the instructions for performing the step of providing the user access to secured data based on the computed confidence score comprise instructions for performing the steps of:

determining a given region of the plurality of regions which comprises the computed confidence score;

determining the security level assigned to the given region; and

accessing secured data using the access map based on the security level assigned to the given region.

17. The program storage device of claim 16, wherein the instructions for performing the step of accessing secured data using the access map comprise instructions for performing the step of allowing access to secured data that is assigned to the security level of the given region and

secured data assigned to at least one security level that is lower than the security level of the given region.

18. The program storage device of claim 12, further comprising instructions for performing the step of re-computing the confidence score upon an occurrence of a predetermined event.

19. The program storage device of claim 18, wherein the predetermined event is a user query for accessing secured data.

20. The program storage device of claim 12, wherein the confidence score is based on a linear function of statistical models that characterize the score under a plurality of conditions.

21. The program storage device of claim 20, wherein the confidence score comprises one of (1) a first component for considering a single mode implementation and (2) the first component and a second component for considering multi-modal implementation.

22. The program storage device of claim 21, wherein the confidence score comprises a mixing factor for weighting the first and second component in a multi-modal implementation.

5           23. An incremental access authentication system, comprising:

10           a database that is partitioned into a plurality of data classes, wherein each data class is assigned a range of confidence scores based on a security level of the data class;

15           a computation module for periodically computing a confidence score during a dialog session with at least one user seeking access to data in the database, wherein the confidence score is a measure of confidence in the validity of an original identity claim provided at a commencement of the dialog session; and

          a dialog manager for controlling access to data in the database based on a last computed confidence score.

20           24. The system of claim 23, further comprising an access map for mapping each data class with the corresponding range of confidence scores, wherein the access

map is utilized by the dialog manager to provide access to data based on the last computed confidence score.

25. The system of claim 23, further comprising means for maintaining the last computed confidence score as part of the system state.

26. The system of claim 23, wherein the confidence score is based on a linear function of statistical models that characterize the score under a plurality of conditions.

27. The system of claim 26, wherein the confidence score comprises one of (1) a first component for considering a single mode implementation and (2) the first component and a second component for considering a multi-modal implementation.

28. The system of claim 27, wherein the confidence score comprises a mixing factor for weighting the first and second component in a multi-modal implementation.